

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/008292 A1

(51) International Patent Classification⁷: **G01V 1/28**

(21) International Application Number:
PCT/IB2004/002618

(22) International Filing Date: 20 July 2004 (20.07.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
0308862 21 July 2003 (21.07.2003) FR

(71) Applicant (for all designated States except US): **COMPAGNIE GENERALE DE GEOPHYSIQUE [FR/FR]**;
1, rue Léon-Migaux, F-91300 Massy (FR).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **HERRMANN, Philippe [FR/FR]**; 1, avenue du Grand Parc, F-78450 Villepreux (FR). **BOUSQUIE, Nicolas [FR/FR]**; 34, rue de Leuville, F-91310 Longpont sur Orge (FR).

(74) Agents: **CALLON DE LAMARCK, Jean-Robert et al.**;
Cabinet Régimbeau, 20, rue de Chazelles, F-75847 Paris Cedex 17 (FR).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

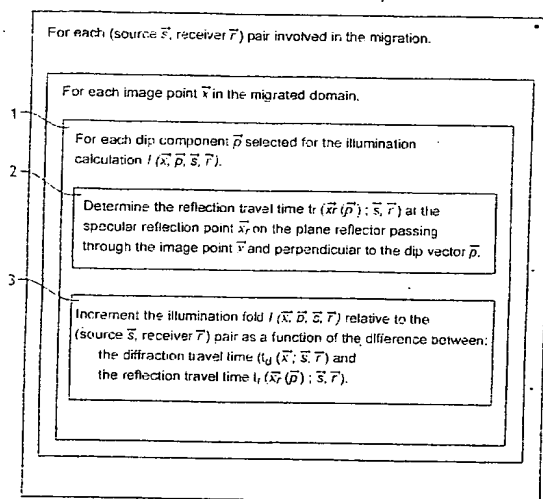
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: METHOD OF ESTIMATING THE ILLUMINATION FOLD IN THE MIGRATED DOMAIN



(57) Abstract: The invention relates to an estimate of the seismic illumination fold (x, p) in the migrated 3D domain at an image point x , for a dip of vector p characterised in that the illumination fold $I(z, p; s, r)$ is estimated for each (source s , receiver r) pair in the seismic survey, by applying the following steps: - determination of the reflection travel time $t_r(x, p; s, r)$ from the source s to the specular reflection point z , on the plane reflector passing through the image point x and perpendicular to the dip vector p , and then return to the reflector r ; starting from the diffraction travel time $t_d(z; s, r)$ from the source to the said image point x and then return to the reflector r ; - incrementing the said illumination fold $I(X, p; s, r)$ related to the said (source s , receiver r) pair as a function of the difference between the diffraction travel time $t_d(x; s, r)$ and the reflection travel time $t_r(xr(p); s, r)$.